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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,480	03/02/2004	Ken Ohmura	KON-1857	2121

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EXAMINER	
DOTE, JANIS L	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/791,480	OHMURA ET AL.	
	Examiner	Art Unit	
	Janis L. Dote	1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *24 March 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,5-14 and 16-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,5-14 and 16-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 March 2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

1. The examiner acknowledges the cancellation of claims 2, 4, and 15, the amendments to claims 1, 11, 12, 14, 16, 19, and 20, and the addition of claims 21-26 filed on Mar. 24, 2007. Claims 1, 3, 5-14, and 16-26 are pending.

2. The replacement drawing sheet of Fig. 1, filed on Mar. 24, 2007, is acceptable.

3. The objection to the drawings set forth in the office action mailed on Nov. 27, 2006, paragraph 1, has been withdrawn in response to the amended paragraph at pages 9-10 of the specification, filed on Mar. 24, 2007.

The objections to the specification set forth in the office action mailed on Nov. 27, 2006, paragraphs 2 and 3, have been withdrawn in response to the amended paragraphs at pages 40-41 and 55-57, and the newly added paragraphs at page 6 and 12 of the specification, filed on Mar. 24, 2007.

The rejections of claims 12, 14-17, and 19 under 35 U.S.C. 112 second paragraph, set forth in the office action mailed on Nov. 27, 2006, paragraph 6, have been withdrawn in response to the amendments to claims 12, 14, and 19 filed on Mar. 24, 2007.

The rejection of claim 20 under 35 U.S.C. 102(b) over JP 10-319813 (JP'813) and the rejections under 35 U.S.C. 103(a)

of claims 1, 3-10, and 14-19 over JP'813 combined with the other cited prior art, set forth in the office action mailed on Nov. 27, 2006, paragraphs 10 and 12-15, have been withdrawn in response to the amendments to claims 1 and 20 filed on Mar. 24, 2007. Those amendments to claims 1 and 20 add the limitation of now-cancelled claim 2, wherein the "intermediate chamber is provided with a cylindrical or conical structure situated in the vertical direction which separates paper dust or toner granules toward the bottom of said toner intermediate chamber by utilizing spiraling flow of gas." As discussed in the office action mailed on Nov. 27, 2006, paragraph 10, JP'813 discloses an image forming apparatus that comprises a recovered toner production device **7**, i.e., the "toner intermediate chamber." A "gas flow" travels through the recovered toner production device **7**, where "foreign matter" is separated from the removed toner to form the "recovered toner." See the USPTO English-language translation of JP'813, Figs. 2-4, and paragraphs 0010-0014. Figs. 2-4 represent various versions of the JP'813 recovered toner production device **7**. However, none of the JP'813 recovered toner production devices separates paper dust or toner granules toward the bottom of the device by utilizing spiraling flow of gas, as recited instant claims 1 and 20.

4. The indicated allowability of the subject matter recited in now-cancelled claim 2, which was incorporated in amended claims 1 and 20 filed on Mar. 24, 2007, is withdrawn in view of the newly discovered reference to US 5,521,690 (Taffler). Rejections based on the newly cited reference follow.

5. The examiner notes that the instant specification at page 15, lines 16-22, defines the term "amorphous polyester" recited in instant claims 5-7 and 11 as "polyester molecules, a clear crystal structure which is not recognized by means of X-ray diffraction, occupy at least 50 mol% of the total component molecules. More specifically, polyester molecules, which have a crystallization degree of less than 0.1% occupy not less than 50% of the total component molecules, are known as amorphous polyester." This "definition" appears to be consistent with other definitions of "amorphous polyester" in the record, as indicated elsewhere in this action.

In the response filed on Mar. 24, 2007, page 21, applicants stated that they agree with the above definition of the term "amorphous polyester."

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1, 3, 5-13, and 16-20 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 20 are indefinite in the phrase "toner immediate chamber is provided with a cylindrical or conical structure situated in the vertical direction" because it is not clear what is meant by the phrase "in the vertical direction." Nor is it clear what is the spatial relationship between the immediate chamber and said structure in the "vertical direction."

Claim 20 is further indefinite in the phrase "separates paper dust or toner granules" because it is not clear from what the paper dust or toner granules are being separated.

8. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

9. Claim 20 is rejected under 35 U.S.C. 102(b) as being anticipated by US 5,521,690 (Taffler).

Taffler discloses an image forming apparatus that comprises: a photoconductive drum; a developing station **10** that comprises a toner box **16**; a cleaning station **28** for removing untransferred toner from the photoconductive drum; a particle separator **24** in the form of a cyclone filter with a toner recycling unit **25**; a suction duct **27** that feeds the untransferred toner from the cleaning station **28** to the particle separator **24**; and a suction duct **41** that connects the toner particle separator **24** to a toner transport duct **23** that is connected to the toner box **16** of the developing station **10** to supply the toner regained from the toner recycling unit **25** to the toner box **16**. Fig. 1; col. 4, line 66, to col. 5, line 4; col. 5, lines 13-14 and 40-62; and col. 6, lines 1-4. According to Taffler, a mixture of toner with dirt particles or "overlarge lumps of toner which has [sic: have] gone lumpy" **84** is sucked out of the cleaning station **28** via the suction duct **27**, the "toner feeding section," to the particle separator **24** thru a toner receiving inlet, where the mixture is separated from the air stream using the cyclone filter. Col. 6, lines 42-45, and col. 8, lines 36-38. The dirt particles or overlarge lumps of toner **84** and the toner fall through the cyclone filter. The dirt particles or overlarge lumps of toner **84** remain in the bottom of the cyclone filter held back by the particle sieve **53**.

The toner falls through the particle sieve **53** in the recycling unit **25** to a toner setting space **57** in the recycling unit. From the toner setting space **57**, the recycled toner is fed back to the toner box **16**, the "toner receiving section," via the suction duct **41** and the toner transport duct **23**, the "transport tube." See Figs. 1 and 3, and col. 8, lines 26-38 and 48-52. To feed the recycled toner to the toner box, ambient air is sucked in via the opened air supply openings **58**, the "transport device to transport the toner from the intermediate chamber to the toner receiving section," flows through the toner setting space **57**, and transports the recycled toner via the suction duct **41** and the toner transport duct **23** to the toner box **16**. See Fig. 3, and col. 8, lines 52-64. The particle separator **24** in combination with the toner recycling unit **25** meet the "toner intermediate chamber" structure recited in instant claim **20**. The particle separator **24** has a conical structure as recited in instant claim 20. The dirt particles or large lumps of toner **84** spiral to the bottom the cyclone filter in a flow of air and are separated from the toner as recited in instant claim 20. The Taffler apparatus meets the structural components recited in instant claim 20.

10. US 2003/0148204 A1 (Ohmura) was published on Aug. 7, 2003, and has an effective filing date of Dec. 4, 2002. US 2003/0113647 A1 (Matsushima'647) was published on Jun. 19, 2003, and has an effective filing date of Aug. 20, 2002. All four dates are prior to the filing date of Mar. 2, 2004, of the instant application. The inventive entities of Ohmura and Matsushima'647 differ from that of the instant application. Thus, Ohmura and Matsushima'647 qualify as prior art under 35 U.S.C. 102(a) and under 35 U.S.C. 102(e). Accordingly, Ohmura and Matsushima'647 also qualify as prior art under 35 U.S.C. 103(c).

11. Claims 14, 21, and 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent 10-319813 (JP'813) combined with Ohmura, Matsushima'647, and US 6,395,442 B1 (Hayashi). See the USPTO translation of JP'813 for cites.

JP'813 discloses an image forming method comprising the steps of: (1) developing an electrostatic latent image on a photosensitive member **1** with a toner to form a toner image; (2) transporting the toner image to a receiving member; (3) fixing the toner image to the receiving member; (4) removing untransferred toner from the surface of the photosensitive member **1** with cleaning device **4** and collecting the removed-

untransferred toner for reuse; (5) transporting the collected-removed-untransferred toner to a recovered toner regeneration device **7**, the "toner intermediate chamber"; and (6) separating "foreign matter," from the collected-removed toner in the regeneration device **7** to produce "recovered toner." See the translation, Figs. 1 to 3, reference claim 1 and paragraphs 0005 and 0007-0012. JP'813 discloses that the "foreign matter" includes paper dust. Translation, paragraph 0002, line 18. The JP'813 process steps meet the process steps recited in instant claim 14 and 21, but for the particular toner recited in the instant claims. According to JP'813, the collected-removed toner from the cleaning device **4** is fed into the screw pump **5a**, then fluidized by compressed air supplied by the gas supplying device **5b**, and then transported as a "gaseous stream" comprising the collected-removed toner and air through a transport tube **6a** to the recovered toner regeneration device **7**. The regeneration device **7** has a cylindrical structure, as recited in instant claim 14. See Figs. 2 and 3. The device **7** comprises a toner receiving port, where the "gaseous stream" of collected-removed toner and air enters the device **7** via the transport tube **6a**. The "gaseous stream" enters a toner receiving section of the device **7**, where "foreign matter" is separated from the collected-removed toner to form the "recovered toner." The

"gaseous stream" comprising the remaining-recovered toner exits the regeneration device **7** through a discharge port and travels to a hopper **2e** of the developing device **2** via a transport tube. See Figs. 2 and 3, and paragraphs 0010-0012. The regeneration device **7** meets the "toner intermediate chamber" structural component limitations recited in instant claims 14 and 21.

As discussed above, JP'813 does not exemplify the use of a toner as recited in the instant claims.

Ohmura discloses a toner that has an average circularity of from 0.94 to 0.98, an average circle-equivalent diameter of from 2.6 to 7.6 μm, and a "circularity gradient versus the circle-equivalent diameter" (another name for "slope of a circularity compared to an equivalent circle diameter") of from -0.050 to -0.010. See paragraphs 0014 and 0024 to 0031; and for example, preparation of Toner 1 at paragraphs 0163-0166 and in Table 1 at page 11. Ohmura further teaches that preferably the toner average circularity is from 0.93 to 0.97, the average circle-equivalent diameter is from 3.4 to 6.6 μm, and the toner "circularity gradient versus the circle-equivalent diameter" is from -0.040 to -0.020. Paragraphs 0015 and 0024. The average circularity value range of 0.94 to 0.98, the average circle-equivalent diameter value range of 2.6 to 7.4 μm, and the gradient value range of -0.050 to -0.010 meet the circularity

and particle size limitations recited in instant claim 21. The preferred average circularity, average circle-equivalent diameter, and gradient value ranges meet the circularity and particle size limitations recited in instant claims 23-26.

Ohmura teaches that its toner is obtained by a salt-out/fusing method, which comprises forming resinous particles of a radical-polymerizable monomer, coagulating the resinous particles and colorant particles in the presence of a coagulant and fusing the coagulated particles. Paragraph 0033 and preparation of Toner 1.

According to Ohmura, its toner "makes it possible to form high quality images without resulting in insufficient fixing." Paragraph 0008 and Table 2, example 1 and the accompanying text. Table 2 reports that the toner in example 1 provided uniform imaged copies; and that after 100,000 copies, "toner filming" was not observed on the photoconductor or on the developing roll.

Ohmura does not exemplify a toner comprising a polyester resin as recited in instant claim 21. However, Ohmura teaches that the toner may comprise a releasing agent. Ohmura further teaches that "the releasing agent is incorporated uniformly within the toner particles including neighborhood of the surface by employing toner prepared by subjecting the resin particles

containing the releasing agent to salting-out/fusion." Paragraph 0109.

Matsushima'647 also teaches that toners obtained by a salting-out/fusing method may comprise a releasing agent by incorporating the releasing agent in the resin particles. Matsushima'647 further teaches that in addition to the releasing agent, the resin particles may comprise a crystalline polyester to improve the fixing property of the toner. Paragraphs 0227, 0228, and 0237-0240. Hayashi teaches that toner particles that are obtained by salting-out/fusing resin particles comprising a crystalline polyester have excellent fixability (adhesion to the image support). Hayashi, col. 3, lines 1-10 and 20-24, and Table 3 at col. 20, example 1, which exemplifies colored toner 1, which comprises a crystalline polyester, and comparative example 1, which exemplifies colored toner 15, which does not contain a crystalline polyester. In Table 1, Hayashi reports that the toner in example 1 exhibited excellent offset resistance and excellent fixability; while the toner in comparative example 1 did not.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Ohmura, Matsushima'647, and Hayashi, to incorporate a crystalline polyester as taught by Matsushima'647 and Hayashi in the resin

particles used to form the toner made by the salt-out/fusing method disclosed by Ohmura. It would have also been obvious for that person to use the resultant toner as the toner in the image forming method disclosed by JP'813. That person would have had a reasonable expectation of successfully practicing an image forming method that provides high quality fixed toner images that have improved adhesion to the transfer medium.

12. Claims 1, 3, 8-10, and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,521,690 (Taffler) combined Ohmura.

Taffler discloses an image forming method using an electrophotographic printing device comprising the steps of: (1) developing an electrostatic latent image on the photoconductive drum with a toner to form a toner image; (2) transporting the toner image to a recording substrate; (3) fixing the transferred toner image to the recording substrate; (4) removing untransferred toner from the surface of the photoconductive drum with cleaning brush and collecting the removed-untransferred toner for reuse; (5) transporting the collected-removed-untransferred toner to a particle separator **24** which is connected to a toner recycling unit **25**; and (6) separating dirt particles or "large lumps of toner which has

[sic: have] gone lumpy" **84** from the collected-removed toner in the recycling unit **25** to produce recycled toner. Figs. 1 and 3; col. 1, lines 10-24; col. 4, line 65, to col. 5, line 10; col. 5, lines 13-14 and 40-62; col. 6, lines 1-4 and 42-45; and col. 8, lines 24-38 and 48-64. The Taffler process steps meet the process steps recited in instant claims 1, 16, 17, and 19, but for the particular toner. lines 52-64. The description of the operation of Taffler's printing device in paragraph 9 above is incorporated herein by reference. The particle separator **24** in combination with the toner recycling unit **25** meet the "toner immediate chamber" structure limitations recited in instant claims 1, 16, and 17. The particle separator **24** meets the conical structure recited in instant claim 1. See Fig. 1 and Fig. 3. The air supply openings **58** are located vertically below the toner inlet in the particle separator **24**. The dirt particles or large lumps of toner **84** spiral to the bottom the cyclone filter in a flow of air and are separated from the toner as recited in instant claim 1.

As discussed above, Taffler also does not exemplify the use of a toner as recited in the instant claims.

Ohmura discloses a toner that meets the toner limitations recited in instant claims 1, 3, 8-10, and 18. The discussion of Ohmura in paragraph 11 above is incorporated herein by

reference. As discussed in paragraph 11 above, Ohmura teaches that its toner "makes it possible to form high quality images without resulting in insufficient fixing."

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Ohmura, to use the Ohmura toner as the toner in the image forming method disclosed Taffler. That person would have had a reasonable expectation of successfully practicing an image forming process that provides that provides high quality fixed toner images.

13. Claims 5 and 11-13 rejected under 35 U.S.C. 103(a) as being unpatentable over Taffler combined with Ohmura as applied to claim 1 above, further combined with Matsushima'647 and Hayashi.

The combined teachings of Taffler and Ohmura render obvious an image forming method as described in paragraph 12 above, which is incorporated herein by reference.

As discussed in paragraph 12 above, Ohmura discloses a toner that meets the average circularity, the average equivalent circle diameter, and the "slope of the circularity to an equivalent circle diameter of the toner particles" limitations recited in instant claims 11 and 13. For the reasons discussed in paragraph 12, the Taffler particle separator **24** in

combination with the toner recycling unit **25** meets the toner immediate chamber structure recited in instant claim 12.

Ohmura does not exemplify a toner comprising a polyester resin as recited in instant claims 5 and 11. However, Ohmura teaches that its toner is obtained by a salt-out/fusing method, which comprises forming resinous particles of a radical-polymerizable monomer, coagulating the resinous particles and colorant particles in the presence of a coagulant and fusing the coagulated particles. Paragraph 0033 and preparation of Toner 1. Ohmura teaches that the toner may comprise a releasing agent. Ohmura further teaches that "the releasing agent is incorporated uniformly within the toner particles including neighborhood of the surface by employing toner prepared by subjecting the resin particles containing the releasing agent to salting-out/fusion." Paragraph 0109.

Matsushima'647 also teaches that toners obtained by a salting-out/fusing method may comprise a releasing agent by incorporating the releasing agent in the resin particles. Matsushima'647 further teaches that in addition to the releasing agent, the resin particles may comprise a crystalline polyester to improve the fixing property of the toner. Hayashi teaches that toner particles that are obtained by salting-out/fusing resin particles comprising a crystalline polyester have

excellent fixability (adhesion to the image support). The discussions of Matsushima'647 and Hayashi in paragraph 11 above are incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Ohmura, Matsushima'647, and Hayashi, to incorporate a crystalline polyester as taught by Matsushima'647 and Hayashi in the resin particles used to form the toner made by the salt-out/fusing method disclosed by Ohmura. It would have also been obvious for that person to use the resultant toner as the toner in the image forming method disclosed by Taffler. That person would have had a reasonable expectation of successfully practicing an image forming method that provides high quality fixed toner images that have improved adhesion to the transfer medium.

14. Claims 1, 5, 8, 9, and 16-19 are r8ejected under 35 U.S.C. 103(a) as being unpatentable over Taffler and US 6,528,224 B2 (Ohno).

Taffler discloses an image forming method as described in paragraph 12 above, which is incorporated herein by reference. As discussed in paragraph 12 above, the Taffler method meets the steps recited in the instant claims, but for the particular toner recited in the instant claims.

Ohno exemplifies a toner that has an average circularity of 0.971 and an average circle-equivalent diameter of 3.5 μm. See toner F at col. 30, lines 32-52, and in Table 3 at cols. 31-32. Toner F comprises a polyester resin and Wax B, which is described in Table 2 at col. 29, as the releasing agent. Col. 29, line 44. The average circularity value of 0.971 and the average circle-equivalent diameter value of 3.5 μm meets the circularity and particle size limitations recited in instant claims 1, 8, and 9. Thus, the Ohmura toner meets the toner limitations recited in instant claims 1, 5, 8, 9, and 18. According to Ohno, its toner has excellent fixability and anti-offset properties. The toner stably provides "high-quality images for a long period of time without adversely affecting members, such as an electrostatic image-bearing member and a toner-carrying member." Col. 3, lines 59-67.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Ohno, to use the Ohno toner as the toner in the image forming method disclosed by Taffler. That person would have had a reasonable expectation of successfully practicing an image forming method that stably provides fixed "high-quality images for a long period of time without adversely affecting" the photoconductor and toner-carrying member.

15. Claims 1, 5, 8, 9, and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taffler combined with Japanese Patent 2000-010333 (JP'333). See the Japanese Patent Office (JPO) machine assisted translation of JP'333.

Taffler discloses an image forming method as described in paragraph 12 above, which is incorporated herein by reference. As discussed in paragraph 12 above, the Taffler method meets the steps recited in the instant claims, but for the particular toner recited in the instant claims.

JP'333 exemplifies a toner that has an average circularity of 0.984 and an average circle-equivalent diameter of 4.1 μm. See the translation of JP'333, abstract and toner B in paragraph 0152 and in Table 1 at page 18. Toner B comprises a styrene-acrylate resin, a polyester resin, and an ester wax as the releasing agent. Translation, paragraph 0145. The average circularity value of 0.984 and the average circle-equivalent diameter value of 4.1 μm meets the circularity and particle size limitations recited in instant claims 1 and 9. The JP'333 average circularity of 0.984 is outside the range of 0.95 to 0.98 recited in instant claim 8. However, JP'333 further teaches that the average circularity can range from 0.960 to 0.995. Translation, paragraph 0034. The lower value, 0.960,

of the range of 0.960 to 0.995, is within the range recited in instant claim 8. Thus, JP'333 teaches a toner that meets the toner limitations recited in instant claims 1, 5, 8, 9, and 18. According to JP'333, its toner stably provides high grade images for a long period of time without adversely affecting either the photoconductor or the dry toner application member. Paragraph 0025.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of JP'333, to use the JP'333 toner as the toner in the image forming method disclosed by Taffler. That person would have had a reasonable expectation of successfully practicing an image forming method that stably provides fixed high-quality images for a long period of time without adversely affecting the photoconductor and dry toner application member.

16. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taffler combined with JP'333, as applied to claim 1 above, further combined with US 5,387,665 (Misawa). See the JPO translation of JP'333 for cites.

The combined teachings of Taffler and JP'333 render obvious an image forming method as described in paragraph 15 above, which is incorporated herein by reference. As discussed in

paragraph 15 above, the Taffler method meets the steps recited in the instant claims, but for the particular toner recited in the instant claims.

As discussed in paragraph 15 above, JP'333 exemplifies a toner that has an average circularity of 0.984 and an average circle-equivalent diameter of 4.1 μm, which meet the circularity and particle size limitations recited in instant claims 6 and 7. JP'333 does not exemplify a toner comprising an amorphous urethane-modified polyester resin as recited in instant claim 7. However, JP'333 teaches that the toner binder resin can be a polyester resin. Paragraph 0046, line 2. JP'333 further teaches that its toner can be made by a melt-knead-pulverization method where the pulverized toner particles are further treated to a process of smoothing and conglobation, i.e., sphering, and then classified into a narrow particle size distribution. Translation, paragraph 0068.

Misawa teaches a degradable amorphous urethane-modified polyester resin for use as a toner binder resin. See col. 3, lines 39-51, and, for example, examples 25-38 at cols. 13-14 and in Table 4. The amorphous urethane-modified polyester resin is obtained by reacting a diisocyanate with a polyester, which is prepared by reacting an amorphous poly(α-hydroxycarboxylic acid) with a polyol. Misawa further teaches that toners comprising its

amorphous polyester resin can be obtained by a melt-kneading-pulverization-classification method. Col. 7, lines 49-54. According to Misawa, toners comprising said amorphous urethane-modified polyester binder resin have excellent grindability, resistance to hot offset, storage stability, and fixing properties. Col. 3, lines 4-14, and Table 4. Misawa further teaches that toner images made from said toners formed on paper can be efficiently removed from the paper, thereby recycling the paper for further reuse. Said toners are also biodegradable. Col. 1, lines 34-41 and 43-58.

Misawa does not define the term "amorphous polyester resin" as disclosed in the instant specification. See paragraph 5, supra. Misawa defines a poly(α-hydroxycarboxylic acid) as "amorphous" when it does not have a melting point. Such amorphous polyesters are said to be prepared by directly dehydrating and polycondensing a mixture of optical isomers of α-hydroxycarboxylic acid or several kinds of α-hydroxycarboxylic acid. Col. 4, lines 36-41. Because Misawa teaches that its amorphous urethane-modified polyester resin does not have a melting point, it is reasonable to presume that it does not show a "clear crystal structure" by X-ray diffraction because it lacks the required regular molecular order. The burden is on applicants to prove otherwise. In re Fitzgerald, 205 USPQ 594

(CCPA 1980).

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of JP'333 and Misawa, to make a toner comprising the Misawa amorphous urethane-modified polyester resin as the toner binder resin by the melt-kneading-pulverization-smoothing-sphering-classification method as taught by JP'333, such that the resultant toner has an average circularity and an average equivalent-circle diameter as taught by JP'333. It would have also been obvious for that person to use the resultant toner in the image forming method disclosed by Taffler. That person would have had a reasonable of successfully practicing an image forming method that provides high-quality fixed images on paper as taught by JP'333, with little, if any, hot offset as taught by Misawa, where the fixed images can be efficiently removed from the paper and the paper recycled for further use.

17. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re*

Berg, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

18. Claims 14 and 21-26 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-8 of U.S. Patent No. 7,150,952 B2 (Matsushima'952) in view of JP'813. See the USPTO translation of JP'813 for cites.

Reference claim 6, which depends from reference claim 1, recites a toner for developing an electrostatic image comprising a colorant and a binder resin comprising a polyester resin or a polyol resin. The toner has an average circle degree of from 0.94 to 0.99, an average circle-equivalent diameter of from 2.6 to 7.6 μm, and an "inclination of circle degree to a circle equivalent diameter" (another name for "slope of a circularity compared to an equivalent circle diameter") of from -0.050 to

-0.010. The polyester and polyol resins meet the resin limitation recited in instant claim 21. The average circle degree value range of 0.94 to 0.99 meets the average circularity range of 0.94 to 0.99 recited in instant claim 21 and encompasses the range of 0.95 to 0.98 recited in instant claims 23 and 26. The average circle equivalent diameter value range of 2.6 to 7.4 μm meets the average circle equivalent diameter value range of 2.6 to 7.4 μm recited in instant claim 21 and encompasses the value range of 3.4 to 6.6 μm recited in instant claims 24 and 26. The inclination value range of -0.050 to -0.010 meets the "slope of a circularity compared to an equivalent circle diameter" of -0.050 to -0.010 recited in instant claim 21 and encompasses the value range of -0.040 to -0.020 recited in instant claim 25. Reference claim 8, which depends from reference claim 1, requires that the binder resin comprise an amorphous polyester resin, which meets the resin limitation recited in instant claim 22.

The claims in Matsushima'952 do not recite the image forming method recited in instant claims 14 and 21. However, as discussed supra, the claims in Matsushima'932 recite that the claimed toner is for developing an electrostatic latent image.

JP'813 teaches an image forming method that meets the steps recited in the instant claims 14 and 21, but for the particular

toner recited in the instant claims. The discussion of JP'813 in paragraph 11 above is incorporated herein by reference. According to JP'813, its image forming method removes the unwanted elements from the untransferred toner so as to regenerate a recovered toner to "have prescribed elements" in order to easily achieve high-quality image formation. Translation, paragraph 0001 and page 5, lines 6-12.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter recited in the claims of Matsushima'952 and of the teachings of JP'813, to make and use a toner as recited in the instant claims, and to use the resultant toner in the method disclosed by JP'813. That person would have had a reasonable expectation of successfully practicing an image forming method that recycles untransferred toner in such a manner that the toner has prescribed elements to form high quality images.

19. Claims 14, 21, and 23-26 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-27 of U.S. Patent No. 6,844,126 B2 (Ohmura'126) in view of Matsushima'647, Hayashi, and JP'813. See the USPTO translation of JP'813 for cites.

Reference claim 14, which depends from reference claim 1, recites a method of forming a toner image comprising the step of developing an electrostatic latent image on a photoreceptor with the toner according to reference claim 1. The toner comprises toner particles that have an average circularity of from 0.94 to 0.98, an average circle-equivalent diameter of from 2.6 to 7.6 μm, and a "gradient of the circularity of the toner particles with respect to the circle-equivalent diameter" (another name for "slope of a circularity compared to an equivalent circle diameter") of from -0.050 to -0.010. Reference claim 2, which depends on reference claim 1, further requires that the average circle-equivalent diameter be from 3.4 to 6.6 μm and that the gradient be from -0.040 to -0.020. The average circle degree value range of 0.94 to 0.98 meets the average circularity range of 0.94 to 0.99 recited in instant claim 21 and encompasses the range of 0.95 to 0.98 recited in instant claims 23 and 26. The average circle equivalent diameter value ranges recited in reference claims 1 and 2 meet the average circle equivalent diameter value ranges recited in instant claim 21 and claims 24 and 26, respectively. The gradient value ranges recited in reference claims 1 and 2 meet the "slope of a circularity compared to an equivalent circle

diameter" values recited in instant claim 21 and 25, respectively.

The claims of Ohmura'126 do not recite that the toner comprises a polyester resin as recited in instant claim 21. However, reference claim 18, which ultimately depends from reference claim 14, recites that the toner particles are prepared by salting-out/fusing at least resinous particles in an aqueous medium.

Matsushima'647 teaches that toners obtained by a salting-out/fusing method may comprise a crystalline polyester to improve the fixing property of the toner. Hayashi teaches that toner particles that are obtained by salting-out/fusing resin particles comprising a crystalline polyester have excellent fixability (adhesion to the image support). The discussions of Matsushima'647 and Hayashi in paragraph 11 above are incorporated herein by reference.

The claims of Ohmura'126 also do not recite the steps of transferring the toner image from the photoreceptor to a recording medium, collecting the non-transferred toner remaining on the photoreceptor for reuse, and passing the collected toner through a toner intermediate chamber as recited in instant claims 14 and 21.

JP'813 teaches process steps that meet the steps recited in the instant claims 14 and 21, but for the particular toner recited in the instant claims. The discussion of JP'813 in paragraph 11 above is incorporated herein by reference. According to JP'813, its image forming method removes the unwanted elements from the untransferred toner so as to regenerate a recovered toner to "have prescribed elements" in order to easily achieve high-quality image formation. Translation, paragraph 0001 and page 5, lines 6-12.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Ohmura'126 and of the teachings of JP'813, to incorporate the steps taught by JP'813 in the image forming method recited in the claims of Ohmura'126. It would have been obvious for that person, in view of the subject matter recited in the claims of Ohmura'126 and of the teachings in Matsushima'647 and Hayashi, to incorporate a crystalline polyester as taught by Matsushima'647 and Hayashi in the resinous particles used to form the toner particles made by the salting-out/fusing method recited in the claims of Ohmura'126. It would have further been obvious for that person to use the resultant toner as the toner in the image forming method rendered obvious over the subject matter claimed in Ohmura'126 combined with the teachings of

JP'813. That person would have had a reasonable expectation of successfully practicing an image forming method that provides high quality fixed toner images that have improved adhesion to the transfer medium and that recycles the untransferred toner in such a manner that the recycled toner has prescribed elements to form high quality images.

20. Claims 1, 3, 5, 6, 8-13, 16, 17, and 19 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-8 of Matsushima'952 in view of Taffler.

The subject matter recited in the claims of Matsushima'952 recites a toner as described in paragraph 18 above, which is incorporated herein by reference. For the reasons discussed in paragraph 18 above, the toner meets the toner limitations recited in instant claims 1, 3, 5, 6, 8-11, and 13.

The claims in Matsushima'952 do not recite the image forming method recited in instant claims 1, 12, 16, 17, and 19. However, as discussed in paragraph 18 supra, the claims in Matsushima'932 recite that the claimed toner is for developing an electrostatic latent image.

Taffler teaches an image forming method that meets the steps recited in the instant claims 1, 12, 16, 17, and 19, but

for the particular toner recited in the instant claims. The discussion of Taffler in paragraph 12 above is incorporated herein by reference. According to Taffler, its image forming method removes the dirt and toner that accumulate in the units of an electrophotographic printing machine, e.g., the untransferred toner removed from a photoconductive drum, recycles the accumulated toner, and returns the recycled toner to the developer station to be reused, "without the printing quality suffering." Col. 1, line 66, to col. 2, line 5; and col. 2, lines 13-15.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter recited in the instant claims of Matsushima'952 and of the teachings of Taffler, to make and use a toner as recited in the instant claims, and to use the resultant toner in the method disclosed by Taffler. That person would have had a reasonable expectation of successfully practicing an image forming method that recycles toner in such a manner that does not affect the print quality of the toned images.

21. Claims 1, 3, 8-10, 16, 17, and 19 are rejected on the ground of nonstatutory obviousness-type double patenting as

being unpatentable over claims 1-27 of Ohmura'126 in view of Taffler.

The subject matter recited in the claims of Ohmura'126 recites an image forming method as described in paragraph 19 above, which is incorporated herein by reference. The image forming method meets the developing step recited in instant claim 1 and the toner limitations recited in instant claims 1, 3, and 8-10.

The claims of Ohmura'126 do not recite the steps of transferring the toner image from the photoreceptor to a recording medium, collecting the non-transferred toner remaining on the photoreceptor for reuse, and passing the collected toner through a toner intermediate chamber as recited in instant claims 1, 12, 16, and 17. Nor do the claims recite the fixing step recited in instant claim 19.

Taffler teaches process steps that meet the steps recited in the instant claims 1, 16, 17, and 19, but for the particular toner recited in the instant claims. The discussion of Taffler in paragraph 12 above is incorporated herein by reference. According to Taffler, its image forming method removes the dirt and toner that accumulate in the units of an electrophotographic printing machine, e.g., the untransferred toner removed from a photoconductive drum, recycles the accumulated toner, and

returns the recycled toner to the developer station to be reused, "without the printing quality suffering." Col. 1, line 66, to col. 2, line 5; and col. 2, lines 13-15.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Ohmura'126 and of the teachings of Taffler, to incorporate the steps taught by Taffler in the image forming method recited in the claims of Ohmura'126. That person would have had a reasonable expectation of successfully practicing an image forming method that recycles toner in such a manner that does not affect the print quality of the toned images.

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (571) 272-1382. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry regarding papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Claudia Sullivan, whose telephone number is (571) 272-1052.

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see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Janis L. Dote

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JLD
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Replacement Sheet

FIG. 1